

Application No. 09/537,775
Amendment dated March 10, 2004
Reply to Office Action of February 10, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) An information display apparatus comprising:
a liquid crystal display comprising a liquid crystal material, a plurality of scan electrodes and a plurality of data electrodes, said liquid crystal material exhibiting, at room temperature, a cholesteric phase in which said liquid crystal material has a bistability between a focal-conic state and a planar state in which said liquid crystal material exhibits a selective reflection characteristic, said scan electrodes and said data electrodes defining a plurality of liquid crystal pixels;

a driver comprising a scan electrode driver and a data electrode driver, said scan electrode driver including a shift register and a plurality of output terminals respectively connected to said scan electrodes, said data electrode driver including a shift register and a plurality of output terminals respectively connected to said data electrodes to drive said liquid crystal display; and

a controller which is connected to said driver, said controller being capable of controlling said driver to repeatedly select only part of scan electrodes by controlling the shift register of the scan electrode driver to perform writing on only part of the pixels of the liquid crystal display corresponding to the selected scan electrodes.

2 -3. (Cancelled)

✓ 4. (Previously Presented) An information display apparatus according to claim 1, wherein said controller controls said driver based on motion picture data.

5. (Previously Presented) An information display apparatus according to claim 1, wherein said controller sends data regarding a writing start line and a writing end line to said driver.

6. (Previously Presented) An information display apparatus comprising: a display having a first display area and a second display area each of which comprises a plurality of scan electrodes and a plurality of data electrodes, wherein: said first display area and the second display area are driven by a first driving method and a second driving method, respectively;

said first driving method and said second driving method are different from each other in that a waveform applied to a selected one of said scan electrodes of the first display area is different from a waveform applied to a selected one of said scan electrodes of the second display area; and

said first display area is a simple matrix display and said second display area is an active matrix display.

7. (Cancelled)

8. (Previously Presented) An information display apparatus comprising: a display having a first display area and a second display area each of which comprises a plurality of scan electrodes and a plurality of data electrodes, wherein: said first display area and the second display area are driven by a first driving method and a second driving method, respectively; and
said first driving method and said second driving method are different from each other in that a waveform applied to a selected one of said scan electrodes of the first display area is different from a waveform applied to a selected one of said scan electrodes of the second display area,

wherein said first display area is capable of displaying an image with a first contrast, and said second display area is capable of displaying an image with a second contrast.

9. (Previously Presented) An information display apparatus comprising:
a display having a first display area and a second display area each of which
comprises a plurality of scan electrodes and a plurality of data electrodes, wherein:
said first display area and the second display area are driven by a first driving
method and a second driving method, respectively; and
said first driving method and said second driving method are different from each
other in that a waveform applied to a selected one of said scan electrodes of the first
display area is different from a waveform applied to a selected one of said scan electrodes
of the second display area,
wherein said first display area is capable of displaying an image with three or more
tones, and said second display area is capable of displaying an image with two tones.

10. (Previously Presented) An information display apparatus comprising:
a display having a first display area and a second display area each of which
comprises a plurality of scan electrodes and a plurality of data electrodes, wherein:
said first display area and the second display area are driven by a first driving
method and a second driving method, respectively; and
said first driving method and said second driving method are different from each
other in that a waveform applied to a selected one of said scan electrodes of the first
display area is different from a waveform applied to a selected one of said scan electrodes
of the second display area,
wherein said first display area and said second display area display images with
mutually different dot sizes, respectively.

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11. (Previously Presented) An information display apparatus comprising:
a first display which displays an image by using a first displaying method; and
a second display which displays an image by using a second displaying method,
said second display being a reflective type liquid crystal display and being capable of
keeping the image thereon without consuming electric power;
wherein the first display is of a structurally different type from said second display.

12. (Previously Presented) An information display apparatus comprising:
a first display which displays an image by using a first displaying method; and
a second display which displays an image by using a second displaying method,
said second display being a reflective type liquid crystal display and being capable of
keeping the image thereon without consuming electric power;

wherein the first display is of a different type from said second display,
wherein a display area of said second display is larger than that of said first
display.

13. (Previously Presented) An information display apparatus comprising:
a first display which displays an image by using a first displaying method; and
a second display which displays an image by using a second displaying method,
said second display being a reflective type liquid crystal display and being capable of
keeping the image thereon without consuming electric power;

wherein the first display includes liquid crystal of a different type from said second
display; and

wherein said second display has a liquid crystal material which exhibits a
cholesteric phase at a room temperature.

14. (Previously Presented) An information display apparatus comprising:
a first display which displays an image by using a first displaying method; and
a second display which displays an image by using a second displaying method,
said second display being a reflective type liquid crystal display and being capable of
keeping the image thereon without consuming electric power;

wherein the first display is of a different type from said second display; and
wherein said first display and said second display overlap each other.

15. (Previously Presented) An information display apparatus comprising:
a first display which displays an image by using a first displaying method; and
a second display which displays an image by using a second displaying method,
said second display being a reflective type liquid crystal display and being capable of
keeping the image thereon without consuming electric power;

wherein the first display is of a different type from said second display;
wherein said first display is detachable from said information display apparatus;
and

wherein said first display and said second display overlap each other.

16. (Previously Presented) An information display apparatus comprising:
a display section comprising a first display and a second display stacked on said
first display;

a driver section connected to said first display and said second display; and
a control section for controlling said driver section to repeatedly update only a part
of said display section, wherein the update of the part is executed so that the first display
and the second display are simultaneously driven by the driver section.

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17. (Currently Amended) An image forming information display apparatus
according to claim 16, wherein said first display and said second display are respectively
for displaying a first color and a second color that is different from the first color.

18. (Currently Amended) An image forming information display apparatus
according to claim 14, wherein when said first display is to be used to display, a portion of
said second display where said first display and said second display overlap is set to a
transparent state.

19. (New) An information display apparatus according to claim 1, wherein
said driver is capable of selecting a plurality of parts of scan electrodes repeatedly to
perform repetitious writing on a plurality of parts of the liquid crystal display
corresponding to the selected scan electrodes.

20. (New) An information display apparatus according to claim 1, wherein the part of the liquid crystal display selected for repetitious writing thereon is smaller than a non-selected part of the liquid crystal display.

21. (New) An information display apparatus according to claim 1, wherein while repetitious writing on the selected part of the liquid crystal display is performed, a non-selected part of the liquid crystal display keeps displaying information thereon by using a memory effect of the liquid crystal material.

22. (New) An information display apparatus according to claim 1, wherein writing on an entirety of the liquid crystal display is performed at specified intervals.

23. (New) An information display apparatus according to claim 1, wherein the part of the liquid crystal display selected for repetitious writing thereon includes a number of scan electrodes, the number being less than a limit within which a display made thereon can be seen as a motion picture.

24. (New) An information display apparatus according to claim 1, wherein the liquid crystal material is a mixture of nematic liquid crystal with a chiral agent of an amount sufficient to permit the liquid crystal material to exhibit a cholesteric phase.

25. (New) An information display apparatus according to claim 1, wherein said driver performs repetitious writing on said selected part of the liquid crystal display by applying voltage pulses including a reset pulse to reset the liquid crystal to a homeotropic state and a selection pulse to select a desired display state of the liquid crystal.

26. (New) An information display apparatus according to claim 1, wherein the liquid crystal display makes a full color display.

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27. (New) An information display apparatus according to claim 1, wherein the liquid crystal display makes a monochromatic display.

28. (New) An information display apparatus according to claim 1, wherein:
the liquid crystal display comprises a plurality of liquid crystal layers stacked one upon another; and
the liquid crystal display displays a motion picture thereon by driving two or more of the liquid crystal layers concurrently.

29. (New) An information display apparatus according to claim 1, wherein the part of the liquid crystal display to be selected for repetitious writing thereon is variable with respect to position and size.
